Claims

1. A method of generating an address for a circular buffer in a memory, comprising the steps of:

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storing a first reference value representative of a begin address of the circular buffer;

storing a second reference value representative of an end address of the circular buffer;

10   storing a third reference value representative of a current write address of the circular buffer;

storing a fourth reference value representative of a current read address of the circular buffer; and

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protecting data stored in memory locations within the circular buffer to prevent stored data being overwritten by further data.

2. The method according to claim 1, further comprising the step of:

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storing a fifth reference value representative of the cyclic state of the circular buffer.

3. The method according to claim 2, wherein the fifth value is a boolean value.

25   4. The method according to claim 2, further comprising the step of preventing writing of data into the circular buffer depending upon the value of the fifth value.

5. The method according to claim 3, wherein the boolean value of the fifth value has one of two binary values, and the fifth value changes from one binary value to another

30   as the value of either of the third and fourth value changes such as to pass the address of the end of the circular buffer.

6. The method according to claim 1, wherein the buffer is an incrementing buffer;

further comprising the step of writing data into the circular buffer as determined by the following truth table:

second value > third value > fourth value	fifth value = one binary value	buffer has free memory locations and these can be allocated
third value < fourth < second value	fifth value = other binary value	buffer has free memory locations and these can be allocated
fourth value = third value	fifth value = one binary value	buffer has free memory locations and these can be allocated
fourth value = third value	fifth value = other binary value	buffer is full and no memory locations can be allocated

7. The method according to claim 1, wherein the data to be stored in the circular buffer is received at at least a first and a second data rate.

8. The method according to claim 7, further comprising the step of allocating an amount of memory space in the circular buffer in accordance with the data rate.

9. The method according to claim 1, wherein the circular buffer is used in a mobile telecommunications system.

10. A circular buffer having an address generator for generating an address for the circular buffer in a memory, comprising:

a first memory storage location storing a first reference value representative of a begin address of the circular buffer;

a second memory storage location storing a second reference value representative of an end address of the circular buffer;

a third memory storage location storing a third reference value representative of a current write address of the circular buffer;

a fourth memory storage location storing a fourth reference value representative of a current read address of the circular buffer; and

a memory controller for protecting data stored in memory locations within the circular buffer to prevent stored data being overwritten by further data.

11. The circular buffer according to claim 10, further comprising:

a fifth memory storage location storing a fifth reference value representative of the cyclic state of the circular buffer.

12. The circular buffer according to claim 11, wherein the memory controller is adapted to prevent writing of data into the circular buffer depending upon the value of the fifth value.

13. The circular buffer according to claim 12, wherein the fifth value has one of two binary values, and the memory controller is adapted to change the fifth value from one binary value to another as the value of either of the third and fourth value changes such as to pass the address of the end of the circular buffer.

14. The circular buffer according to claim 13, wherein the buffer is an incrementing buffer and the memory controller is adapted to allow writing of data into the circular buffer as determined by the following truth table:

second value > third value > fourth value	fifth value = one binary value	buffer has free memory locations and these can be allocated
third value < fourth < second value	fifth value = other binary value	buffer has free memory locations and these can be allocated
fourth value = third value	fifth value = one binary value	buffer has free memory locations and these can be allocated
fourth value = third value	fifth value = other binary value	buffer is full and no memory locations can be allocated

15. The circular buffer according to claim 10, wherein the data to be stored in the circular buffer is received at at least a first and a second data rate and the memory controller is adapted to allocate an amount of memory space in the circular buffer in accordance with the data rate.

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16. A mobile telecommunications system comprising a circular buffer having an address generator for generating an address for the circular buffer in a memory, comprising:

10   a first memory storage location storing a first reference value representative of a begin address of the circular buffer;

a second memory storage location storing a second reference value representative of an end address of the circular buffer;

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a third memory storage location storing a third reference value representative of a current write address of the circular buffer;

a fourth memory storage location storing a fourth reference value representative of a
20   current read address of the circular buffer; and

a memory controller for protecting data stored in memory locations within the circular buffer to prevent stored data being overwritten by further data.

25   17. The mobile telecommunications system according to claim 16, wherein the circular buffer is according to any of claims 11 to 15.